

## A PRELIMINARY LIST OF THE BIRDS OF HOT SPRINGS NATIONAL PARK AND VICINITY

BY WILLIAM H. DEADERICK

Hot Springs National Park is located southeast of the center of Garland County, this county lying just southwest of the center of Arkansas. The generally rough topography of the county is drained by the Ouachita River and its tributaries and by the tributaries of the Saline River. The steep ridges, which are mostly of zigzag or parallel patterns, range up to 1400 feet above sea level. They make up parts of six distinct mountain ranges separated more or less from each other by a system of three relatively wide basins.

The exposed rocks of this county represent a rather continuous deposition of sands, mud, and chert in the Ouachita Embayment which persisted in the present Ouachita Mountain area throughout most of the Paleozoic era. The sedimentary rocks of this region are essentially all silicious and include the following formations, listed in order from oldest to youngest: Mazam shale, Blakely sandstone, Womble shale, Bigfork chert, Polk Creek shale, Blaylock sandstone, Missouri Mountain shale, Arkansas novaculite, Hot Springs sandstone, Stanley shale, Jackfork sandstone, and Atoka sandstone. Most of the ridges are topped with Arkansas novaculite and there are small areas of igneous rocks exposed in a few places. I am indebted to Mr. H. W. Lix of the National Park Service, for these geologic data.

The soil is thin, rocky, dry, acid, and relatively sterile over almost the entire county. From the standpoint of agricultural productivity Garland stands near the bottom of the list of Arkansas counties.

There is a small area of Upper Austral Zone in the extreme northern portion of the county west of Jesseville, an area more or less sausage-shaped, running approximately east and west and not more than four by eleven miles in extent. None of my bird studies were made in this section but were confined to the Lower Austral Zone.

The Ouachita River enters the county at the center of its western boundary, winds irregularly southeast and makes its exit near the southeast corner. In 1924 the Arkansas Light and Power Company completed a dam across the Ouachita River, forming Lake Catherine, some six miles of which is in the southwest corner of this county. Another dam was built across this river four miles south of the City of Hot Springs forming Lake Hamilton. The gates to the dam were closed December 17, 1930, and the initial operation of the hydroelectric plant was January 1, 1932. This lake is at an elevation of 400 feet above sea level, has a river length of twenty-four miles, a shore

line of 170 miles, and covers an area of 7,150 acres. The depth varies from wide shallows over the inundated flats to more than 100 feet in the river channel. Depending on the rainfall and the amount of water required for the generative units the water level varies. A maximum vertical fall of twenty-five feet has been reached once. These variations produce marked changes in the shore line, resulting in wide beaches at low levels.

The average temperature in this section during January is about 42° F., that for July about 80° F. The rainfall during 1934 was 53.67 inches, in 1935, 59.66 inches, in 1936, 38.04 inches.

Seventy-eight per cent of Garland County is in forest, at least seventy-five per cent of which is in second growth pine, principally short leaf pine (*Pinus echinata*) and loblolly pine (*Pinus taeda*). Forest fires occur often enough to sweep the ground cover of the pine woods clean.

There are no extensive areas of deciduous trees in the county, such as there are lying mostly along the streams. A not inconsiderable portion of this hardwood was destroyed in clearing the beds of Lakes Catherine and Hamilton. The commonest deciduous trees are the various species of oaks, sweet gum (*Liquidambar styraciflua*), black gum (*Nyssa sylvatica*), and American elm (*Ulmus americana*). In the more open flats are found *Crataegus* ssp. and persimmon (*Diospyros virginiana*) as well as blackberry and reproduction growth of winged elm (*Ulmus alata*). There is the usual ground shelter of grass and weeds but cattle are permitted to roam at large and forage grasses are kept closely cropped.

The principal food plants are wild cherry (*Prunus serotina*), blackberry and dewberry (*Rubus* ssp.), hackberry (*Celtis* ssp.), pokeberry (*Phytolacca decandra*), service-berry (*Amelanchier canadensis*), Indian cherry (*Rhamnus caroliniana*), red mulberry (*Morus rubra*), French mulberry (*Callicarpa americana*), mistletoe (*Phoradendron flavescens*), wild grape (*Vitis* ssp.), poison ivy (*Rhus toxicodendron*), sumac (*Rhus copallina* and *R. glabra*), black haw (*Viburnum* ssp.), dogwood (*Cornus florida*), and various elms (*Ulmus* ssp.). The seed producing weeds and other plants are estimated at about 350 varieties. Mr. H. R. Gregg of the National Park Service, kindly furnished these botanical data.

In Lake Hamilton the decided fluctuations of the water level are not conducive to a wide variety of food plants for water fowl. "Musk grass", however, is abundant and is a favorite food with many water birds. A specimen of this was sent to Dr. Marshall A. Howe, of the

New York Botanical Garden, who kindly identified it as *Chara robinsonii*.

It is only about forty miles north of Hot Springs to the Arkansas Valley. From there north the proportion of deciduous trees is at least a reversal of that in this section, in fact there are extensive areas of forest in which little pine is found. About twenty-five miles south of us begins the Gulf Coastal Plain. In that part of the state there are large tracts of deciduous forest and in the bottomland and along the main rivers and smaller streams there are bands of practically one hundred per cent of hardwood types including cypress. The fact that the Hot Springs area is wooded largely with second growth pine and lies between two sections rich in deciduous woods, may account for the scarcity or absence of some species of birds, and the paucity of individuals which are more or less common in some other parts of the state. Two or three hours easy flight would enable most birds to pass us by. Particularly noticeable is the small number of warblers found in this vicinity. The only migratory movement I have ever seen in this section which could be called a "wave" is that of the Myrtle Warbler which is also a winter resident. The transients pass here the latter part of March and early April and again in early November in great numbers.

On the other hand there is a variety, and in the case of some species, a considerable number of individuals, of water birds.

A line drawn due north through Lake Hamilton transects Lake Taneycomo and Lake of the Ozarks, both of which are artificial lakes in Missouri. Lake Taneycomo, 155 miles north of Hot Springs and in the southern part of Missouri, is twenty-five miles long and covers 5,000 acres. Lake of the Ozarks, about 265 miles north of here, is the largest body of impounded water in the world, over 129 miles long and covering more than ninety-five square miles. This line crosses also the Arkansas River some fifty miles north of Hot Springs and, continued south about 180 miles, the Red River in Louisiana. It could hardly be maintained that this line has been adopted as a new migratory lane for it lies in about the center of the widest and most used of the known migratory avenues but it does afford suitable feeding stations at convenient intervals. About 140 miles to the east is the much traveled Mississippi River route but I know of nothing comparable to the west of us. It is not improbable that during seasons of drouth water birds will concentrate along lanes affording a certain water supply. The effect of recently impounded water on the water bird life of this section is shown by the addition of thirteen water birds

to the state list, by the observation of four water birds of which there is only one previous record in the state, four of which there are only two previous records, and two recorded by only four observers.

Within the limits of the National Park the greatest enemy of bird life is probably the cat. It is estimated that twenty are killed annually by the park rangers and that there are yet probably fifty at large. Public Enemy No. 1 to breeding birds in this vicinity is undoubtedly the Blue Jay, our most abundant bird with the exception of the English Sparrow. Crows also are numerous and are notorious nest robbers. Hawks and owls are relatively rare. Aside from the cat the only mammals which may be predators of any importance are the opossum and the squirrel. Our predacious snakes, which are in moderate numbers only, are the black snake (*Coluber constrictor* ssp.), the pilot black snake (*Elaphe obsoleta obsoleta*), and the coach-whip (*Masticophis flagellum flagellum*). The man-element in bird destruction is almost negligible. I know of no collectors of either birds or eggs in this region. There is probably the usual number of air guns and small bore rifles in the hands of the boys but poor marksmanship prevents many kills.

#### THE LIST

COMMON LOON. *Gavia immer immer*. Fairly common fall transient, rare winter resident. Arrivals, October 5-24. My 1935 observations were recorded in the *Auk*, July, 1936, p. 349.

HORNED GREBE. *Colymbus auratus*. Fairly common fall transient, rare winter resident. Arrivals, October 1-15. My first observation was reported in the *Auk*, July, 1936, p. 349.

PIED-BILLED GREBE. *Podilymbus podiceps podiceps*. Common winter resident. Arrivals, August 2-September 6; latest records, April 16-22; one record for July 3, 1935. Usually seen as singles or small groups, largest of 13.

DOUBLE-CRESTED CORMORANT. *Phalacrocorax auritus auritus*. Common transient. Spring arrivals, March 26-April 18; latest spring records, May 8-13. Fall arrivals, September 16-25; latest fall records, November 17-December 17.

WATER-TURKEY. *Anhinga anhinga*. Very rare transient. I have only one record, October 30, 1931.

GREAT BLUE HERON. *Ardea herodias herodias*. Permanent resident, fairly common in spring, common in summer and fall, uncommon in winter.

WARD'S HERON. *Ardea herodias wardi*. Observations made July 29, August 4, 5, and 11, 1936. On August 5 there was a pair, on the other dates, singles.

AMERICAN EGRET. *Casmerodius albus egretta*. Common summer visitant. Arrivals, July 22-23; latest records, September 16-October 26.

LOUISIANA HERON. *Hydranassa tricolor ruficollis*. Rare summer visitant. One was seen August 1, 1937, two singles August 8, 1937, and one August 19, 1937.

LITTLE BLUE HERON. *Florida caerulea caerulea*. Common summer visitant. Arrivals, July 4-27; latest records, September 28-October 10. An off-season record for May 14, 1935, another for May 18, 1936. Of 632 individuals enumerated during the summers of 1935 and 1936 six have been in the blue phase.

EASTERN GREEN HERON. *Butorides virescens virescens*. Common summer resident. Arrivals, April 14-18; latest records, September 9-23. All the nests I have found have been in water oak trees (*Quercus nigra*).

AMERICAN BITTERN. *Botaurus lentiginosus*. I have only one record, November 17, 1936. A specimen was taken by some local hunters and presented to me.

COMMON CANADA GOOSE. *Branta canadensis canadensis*. Uncommon fall transient. Arrivals, October 19-24.

LESSER SNOW GOOSE. *Chen hyperborea hyperborea*. Uncommon transient. One spring record, March 25, 1936; fall arrivals, October 24-November 8.

BLUE GOOSE. *Chen caerulescens*. Rare transient. Singles were seen October 25 and 30, 1937.

COMMON MALLARD. *Anas platyrhynchos platyrhynchos*. Common transient, uncommon winter resident. Arrivals, October 21-26; latest record, March 26.

COMMON BLACK DUCK. *Anas rubripes tristis*. Uncommon transient, rare winter resident. Spring arrivals, about the middle of April; fall arrivals, during the last of October.

GADWALL. *Chaulelasmus streperus*. Common transient. Fall records, October 17-December 28.

BALDPATE. *Mareca americana*. Fairly common transient. Spring records, April 5-6; fall records, October 12-November 12.

AMERICAN PINTAIL. *Dafila acuta tzitzihoa*. Common transient, uncommon winter resident. Fall arrivals, September 20-28.

GREEN-WINGED TEAL. *Nettion carolinense*. Fairly common transient, uncommon winter resident. First fall record, November 13.

BLUE-WINGED TEAL. *Querquedula discors*. Abundant transient. Spring records, April 2-May 10; fall, August 25-November 2.

SHOVELLER. *Spatula clypeata*. I have only one record, October 5, 1936.

WOOD DUCK. *Aix sponsa*. My single record is for January 10, 1935.

REDHEAD. *Nyroca americana*. Uncommon transient. Earliest record, October 28; latest, November 14.

RING-NECKED DUCK. *Nyroca collaris*. Common winter resident. Arrivals, September 16-October 29; latest records, April 4-May 13.

CANVAS-BACK. *Nyroca valisneria*. Fairly common transient. Earliest fall record, October 24.

GREATER SCAUP DUCK. *Nyroca marila*. Rare transient and winter resident. Earliest fall record, October 7.

LESSER SCAUP DUCK. *Nyroca affinis*. Common winter resident. Arrivals, September 27-October 5; latest records, April 2-May 23.

BUFFLE-HEAD. *Charitonetta albeola*. Fairly common transient, rare winter resident. Earliest fall record, November 17.

RUDDY DUCK. *Erismatura jamaicensis rubida*. Common transient, uncommon winter resident. Arrivals, October 10-November 4.

HOODED MERGANSER. *Lophodytes cucullatus*. My only record is for October 26, 1936.

AMERICAN MERGANSER. *Mergus merganser americanus*. I have only one record, January 28, 1937, when a single and a group of six were seen on Lake Hamilton.

RED-BREASTED MERGANSER. *Mergus serrator*. Uncommon fall transient. Arrivals, October 24-November 14. My earliest observations were reported in the *Auk*, July, 1936, p. 349.

TURKEY VULTURE. *Cathartes aura septentrionalis*. Common permanent resident. The ratio of my records for this species to those of the Black Vulture is as six to one.

BLACK VULTURE. *Coragyps atratus atratus*. Fairly common permanent resident.

SHARP-SHINNED HAWK. *Accipiter velox velox*. Uncommon transient.

COOPER'S HAWK. *Accipiter cooperi*. Uncommon, probably a permanent resident. One was recorded May 2, 1937.

EASTERN RED-TAILED HAWK. *Buteo borealis borealis*. Rare transient. Two spring records, March 13 and 18; one fall record, November 4.

NORTHERN RED-SHOULDERED HAWK. *Buteo lineatus lineatus*. Uncommon permanent resident.

SOUTHERN BALD EAGLE. *Haliaeetus leucocephalus leucocephalus*. Uncommon permanent resident. Reported in the *Auk*, July, 1936, p. 349.

MARSH HAWK. *Circus hudsonius*. I have made only three observations, September 11 and October 3 and 20, 1936.

OSPREY. *Pandion haliaëtus carolinensis*. Fairly common summer resident. Arrivals, April 7-May 6; latest records, October 26-November 4. I have seen as many as four at one time on a small portion of Lake Hamilton.

EASTERN SPARROW HAWK. *Falco sparverius sparverius*. Uncommon permanent resident.

EASTERN BOB-WHITE. *Colinus virginianus virginianus*. Common permanent resident.

RING-NECKED PHEASANT. *Phasianus colchicus torquatus*. Only one has been observed, May 3, 1936.

EASTERN TURKEY. *Meleagris gallopavo silvestris*. Rare permanent resident. One was killed about twelve miles from Hot Springs by a local hunter, April 16, 1937.

KING RAIL. *Rallus elegans elegans*. One was killed by a local hunter, December 22, 1935. Reported in the *Auk*, October, 1936, p. 455.

AMERICAN COOT. *Fulica americana americana*. Abundant transient, common winter resident. Arrivals, August 27-September 28; latest records, May 12-June 12. Seen in rafts of a thousand or more during the fall migration.

PIPING PLOVER. *Charadrius melodus*. A single specimen was collected August 10, 1936.

SEMIPALMATED PLOVER. *Charadrius semipalmatus*. Fairly common fall transient. Earliest record, August 30; latest, October 12; largest group seen, three.

KILLDEER. *Oxyechus vociferus vociferus*. Common permanent resident.

AMERICAN GOLDEN PLOVER. *Pluvialis dominica dominica*. Uncommon transient. Observed from March 28-April 14, 1936, and September 9, 1936. The largest group numbered five. Reported in the *Auk*, October, 1936, p. 455.

BLACK-BELLIED PLOVER. *Squatarola squatarola*. Uncommon fall transient. Seen in summer plumage, September 14, 16, and 17, 1936; in winter plumage, October 28, 29, and November 1, 1936. The largest group was one of six.

AMERICAN WOODCOCK. *Philohela minor*. I have no personal records of this species but reports of reliable sportsmen convince me that it is found here in increasingly small numbers.

WILSON'S SNIPE. *Capella delicata*. Uncommon transient. Spring arrivals appear during the latter half of April; fall, August 16-October 14.

UPLAND PLOVER. *Bartramia longicauda*. Uncommon fall transient. Earliest record, August 10; latest, September 5. Largest group observed, one of twenty-two.

SPOTTED SANDPIPER. *Actitis macularia*. Common transient. Spring arrivals, May 7-20; fall, July 21-August 10. Have never seen more than two together.

EASTERN SOLITARY SANDPIPER. *Tringa solitaria solitaria*. Rare transient. Spring arrivals, May 1-18; only one fall record, September 13.

WESTERN WILLET. *Catoptrophorus semipalmatus inornatus*. Uncommon transient. Spring arrivals, May 3-20; fall arrivals, August 16-September 15.

GREATER YELLOW-LEGS. *Totanus melanoleucus*. Fairly common transient. Fall arrivals, August 23-September 5; latest record, November 6. I have no spring records.

LESSER YELLOW-LEGS. *Totanus flavipes*. Common transient. Spring arrivals, May 1-4; fall arrivals, August 3-September 23; latest fall record, October 29.

PECTORAL SANDPIPER. *Pisobia melanotos*. Common transient. Spring arrivals, May 7-12; fall arrivals, first week in August. Seen from August 5-October 3. Largest flock observed, thirteen; most commonly as singles, pairs, or small groups. My first observation reported in the *Auk*, July, 1935, p. 324.

WHITE-RUMPED SANDPIPER. *Pisobia fuscicollis*. Rare transient. Two observations only, May 12, 1935, and April 24, 1936. See the *Auk*, July, 1935, p. 324.

BAIRD'S SANDPIPER. *Pisobia bairdi*. Rare transient. Only one record, September 16, 1936.

LEAST SANDPIPER. *Pisobia minutilla*. Fairly common transient. Spring arrivals, May 13-14; numerous fall observations between August 17 and November 2. Largest flight seen, fifteen.

RED-BACKED SANDPIPER. *Pelidna alpina sakhalina*. November 2, 1936, two of these were seen feeding with seven Least Sandpipers and November 12, 1936, another pair was observed.



STILT SANDPIPER. *Micropalama himantopus*. Rare transient. Two observations only, August 26 and September 2, 1936. each of a single bird.

SEMIPALMATED SANDPIPER. *Ereunetes pusillus*. Fairly common transient. Spring arrivals, May 12-16; fall, on or about August 10. Has been seen in flights up to twenty-five in number. My first observations here and in eastern Arkansas were recorded in the *Auk*, July, 1935, p. 324.

BUFF-BREADED SANDPIPER. *Tryngites subruficollis*. Fairly common fall transient. Numerous records between August 8 and September 13. Largest group seen, thirteen. All I have seen were feeding in the grass above the shore line.

SANDERLING. *Crocethia alba*. Rare transient. Only two records. September 16 and October 29, 1936.

WILSON'S PHALAROPE. *Steganopus tricolor*. Rare fall transient. Singles were seen August 27 and September 10 and 11, 1936.

HERRING GULL. *Larus argentatus smithsonianus*. Uncommon winter resident. Arrivals, September 24-October 24; latest records, May 3-20. Largest group observed, one of eight.

RING-BILLED GULL. *Larus delawarensis*. Fairly common but irregular winter resident. Arrivals, August 21-November 2; latest records, February 7-May 3. Largest group recorded, twenty-nine.

FRANKLIN'S GULL. *Larus pipixcan*. Rare transient. My only record, a flight of nine observed September 29, 1936.

BONAPARTE'S GULL. *Larus philadelphia*. Uncommon transient. Observed in 1936, October 1, a single; October 17, three; October 25, a pair; October 31, a flight of sixty; and November 7, a single.

FORSTER'S TERN. *Sterna forsteri*. Fairly common. I have seen them during May (after the 13th), June, July, August, September, and October (to the 10th). Largest flight, twelve.

COMMON TERN. *Sterna hirundo hirundo*. Uncommon transient. Earliest record, May 20; latest, September 10. Largest group seen, six. See the *Auk*, July, 1936, p. 350.

LEAST TERN. *Sterna antillarum antillarum*. Fairly common. Seen irregularly through most of June, July, August, and early September. Largest group observed, twenty.

CASPIAN TERN. *Hydroprogne caspia imperator*. Fairly common fall transient, from August 31-September 29. Largest flight seen, eleven. First observations reported in the *Auk*, July, 1936, p. 350.

BLACK TERN. *Chlidonias nigra surinamensis*. Abundant transient. Spring arrivals, May 12-24; fall, July 24-August 6. I have seen flights up to one hundred or more.

EASTERN MOURNING DOVE. *Zenaidura macroura carolinensis*. Common permanent resident.

YELLOW-BILLED CUCKOO. *Coccyzus americanus americanus*. Common summer resident. Arrivals, May 4-7; latest records, August 7-September 11.

BLACK-BILLED CUCKOO. *Coccyzus erythrophthalmus*. I have only one record, May 5, 1936.

BARN OWL. *Tyto alba pratincola*. One was killed in 1935 and the mounted specimen is now on display at the shop of a local taxidermist.

SOUTHERN SCREECH OWL. *Otus asio asio*. Uncommon permanent resident.

GREAT HORNED OWL. *Bubo virginianus virginianus*. One was captured alive in the National Park, September 2, 1936, by Mr. H. W. Lix, National Park Naturalist. It was measured, photographed, and released the next day.

NORTHERN BARRED OWL. *Strix varia varia*. Uncommon permanent resident.

SHORT-EARED OWL. *Asio flammeus flammeus*. My single record for this species is for February 3, 1937.

CHUCK-WILL'S-WIDOW. *Antrostomus carolinensis*. Uncommon summer resident.

EASTERN WHIP-POOR-WILL. *Antrostomus vociferus vociferus*. Fairly common summer resident. Arrivals, April 18-May 13; latest records, June 26-July 11.

EASTERN NIGHTHAWK. *Chordeiles minor minor*. Uncommon summer resident. Arrivals, May 17-31; latest record, September 10.

CHIMNEY SWIFT. *Chaetura pelagica*. Abundant summer resident. Arrivals, March 28-30; latest records, October 7-18.

WHITE-THROATED SWIFT. *Aeronautes saxatalis saxatalis*. A specimen was taken alive on the eleventh floor of a local office building and given to Mr. H. R. Gregg, National Park Naturalist, who reported it in the *Auk*, October, 1935, p. 452.

RUBY-THROATED HUMMINGBIRD. *Archilochus colubris*. Common summer resident. Arrivals, April 9-15; latest records, September 3-21.

EASTERN BELTED KINGFISHER. *Megasceryle alcyon alcyon*. Common permanent resident.

SOUTHERN FLICKER. *Colaptes auratus auratus*. Common permanent resident.

SOUTHERN PILEATED WOODPECKER. *Ceophloeus pileatus pileatus*. Fairly common permanent resident.

RED-BELLIED WOODPECKER. *Centurus carolinus*. Abundant permanent resident.

RED-HEADED WOODPECKER. *Melanerpes erythrocephalus*. Abundant summer resident, rare winter resident.

YELLOW-BELLIED SAPSUCKER. *Sphyrapicus varius varius*. Uncommon winter resident. Arrivals, October 2-4; latest records, April 7-19.

EASTERN HAIRY WOODPECKER. *Dryobates villosus villosus*. Fairly common permanent resident.

SOUTHERN DOWNY WOODPECKER. *Dryobates pubescens pubescens*. Common permanent resident.

EASTERN KINGBIRD. *Tyrannus tyrannus*. Fairly common summer resident. Arrivals, April 15-18; latest records, August 23- September 10.

NORTHERN CRESTED FLYCATCHER. *Myiarchus crinitus boreus*. Common summer resident. Arrivals, April 19-22; latest records, August 6- September 15.

EASTERN PHOEBE. *Sayornis phoebe*. Fairly common permanent resident. A nest which I found was used for two broods in 1935 and again in 1936.

LEAST FLYCATCHER. *Empidonax minimus*. Fairly common spring and fall transient. Earliest spring record, April 29; earliest fall record, September 12.

EASTERN WOOD PEWEE. *Myiochanes virens*. Common summer resident. Arrivals, April 20-May 1; latest records, September 15-October 1.

PRAIRIE HORNED LARK. *Otocoris alpestris praticola*. My sole record is for April 3, 1936.

TREE SWALLOW. *Iridoprocne bicolor*. My only observation of this species was made April 23, 1936.

BANK SWALLOW. *Riparia riparia riparia*. Uncommon transient. Several were observed May 4, 1937, flying with Rough-winged, Tree, and Barn Swallows.

ROUGH-WINGED SWALLOW. *Stelgidopteryx ruficollis s erripennis*. Common summer resident. Arrivals, April 2-7; latest records, October 14-29.

BARN SWALLOW. *Hirundo erythrogaster*. Uncommon transient. Spring arrivals, May 6-10; fall, on or about October 9.

NORTHERN CLIFF SWALLOW. *Petrochelidon albifrons albifrons*. Uneommon transient. Seen April 27, 1937, flying with Tree and Barn Swallows.

PURPLE MARTIN. *Progne subis subis*. Common summer resident. Arrivals, March 13-20; latest records, August 13-16.

NORTHERN BLUE JAY. *Cyanocitta cristata cristata*. Permanent resident. Our most abundant bird with the possible exception of the English Sparrow. Have seen them carrying nesting material as early as March 8. Flocks observed October 4-8 may indicate migration.

EASTERN CROW. *Corvus brachyrhynchos brachyrhynchos*. Abundant permanent resident.

CAROLINA CHICKADEE. *Penthestes carolinensis carolinensis*. Common permanent resident.

TUFTED TITMOUSE. *Baeolophus bicolor*. Abundant permanent resident.

WHITE-BREASTED NUTHATCH. *Sitta carolinensis carolinensis*. Abundant permanent resident, distributed nearly evenly throughout the year.

RED-BREASTED NUTHATCH. *Sitta canadensis*. Rare transient. My records are for spring only. March 17-31. Reported in the *Auk*, July, 1935, p. 324.

BROWN CREEPER. *Certhia familiaris familiaris*. Uneommon winter resident. Earliest record, November 1; latest, March 27.

WESTERN HOUSE WREN. *Troglodytes aedon parkmani*. My two records are for April 14 and September 24, 1936. The skin of one of the specimens was identified for me by Dr. Herbert Friedmann.

EASTERN WINTER WREN. *Nannus hyemalis hyemalis*. Uneommon winter resident. Records too few to determine arrival and departure dates.

BEWICK'S WREN. *Thryomanes bewicki bewicki*. Uneommon winter resident. remaining from about October 6 to about April 15.

CAROLINA WREN. *Thryothorus ludovicianus ludovicianus*. Abundant permanent resident.

EASTERN MOCKINGBIRD. *Mimus polyglottos polyglottos*. Abundant permanent resident with no apparent seasonal variation in prevalence. Its militant territorialism is not confined to the breeding season.

CATBIRD. *Dumetella carolinensis*. Common summer resident. Arrival on or about April 20; latest records, October 2-22.

BROWN THRASHER. *Toxostoma rufum*. Fairly common permanent resident. Have seen them carrying nesting material as early as March 14.

EASTERN ROBIN. *Turdus migratorius migratorius*. Abundant permanent resident except during the last three months of the year when observations are relatively fewer. Spring migratory influx denoted by flocks in March. Raise two broods.

WOOD THRUSH. *Hylocichla mustelina*. Abundant summer resident. Arrivals. April 13-17; latest records, September 21-24.

EASTERN HERMIT THRUSH. *Hylocichla guttata faxoni*. Fairly common winter resident. Arrivals, on or about October 20; latest records, April 18-19.

OLIVE-BACKED THRUSH. *Hylocichla ustulata swainsoni*. Uncommon transient. Singles were seen May 5, 8, 9, 10, and 12, 1937.

GRAY-CHEEKED THRUSH. *Hylocichla minima aliciae*. Uncommon transient. Spring records, April 27-May 8; one fall record, November 19.

BLUEBIRD. *Sialia sialis sialis*. An abundant permanent resident. Have seen them copulating as early as February 19.

BLUE-GRAY GNATCATCHER. *Poliophtila caerulea caerulea*. Common summer resident. Arrivals, March 30-April 4; latest records, September 2-28.

EASTERN GOLDEN-CROWNED KINGLET. *Regulus satrapa satrapa*. Uncommon winter resident. Arrivals, October 25-28; latest records, February 23-March 20.

EASTERN RUBY-CROWNED KINGLET. *Corthylio calendula calendula*. Fairly common winter resident. Arrivals, October 5-8; latest records, April 29-May 5.

AMERICAN PIPIT. *Anthus spinoletta rubescens*. Fairly common transient. Spring arrivals during the first week in April; fall, about the middle of October.

CEDAR WAXWING. *Bombycilla cedrorum*. Erratic winter resident.

MIGRANT SHRIKE. *Lanius ludovicianus migrans*. Common permanent resident. Little if any variation in seasonal prevalence.

STARLING. *Sturnus vulgaris vulgaris*. On October 27, 1936, I watched a flight of sixty or more feeding near Lake Hamilton. Specimens were collected.

WHITE-EYED VIREO. *Vireo griseus griseus*. Common summer resident. Arrivals, March 28-April 1; latest records, September 21-25.

YELLOW-THROATED VIREO. *Vireo flavifrons*. Uncommon spring transient, very rare summer resident. Arrivals, March 27-30.

BLUE-HEADED VIREO. *Vireo solitarius solitarius*. Rare transient. One spring record, April 29; two fall records, each November 1.

RED-EYED VIREO. *Vireo olivaceus*. Common summer resident. Arrivals, April 13-20; latest records, August 24-September 18.

PHILADELPHIA VIREO. *Vireo philadelphicus*. Rare transient. A male was collected May 8, 1937.

EASTERN WARBLING VIREO. *Vireo gilvus gilvus*. Rare transient. One record. April 29.

BLACK AND WHITE WARBLER. *Mniotilta varia*. Common summer resident. Arrivals, on or about March 28; latest records, September 19-October 14.

TENNESSEE WARBLER. *Vermivora peregrina*. Rare transient. I have only two records, May 9, 1935, and September 19, 1936.

ORANGE-CROWNED WARBLER. *Vermivora celata celata*. Rare transient. My observations were reported in the *Auk*, July, 1936, p. 350.

NORTHERN PARULA WARBLER. *Comsothlypis americana pusilla*. Uncommon transient. Spring arrivals, March 27-April 30; fall arrivals, September 10-19. I have one summer record, July 11, 1935.

EASTERN YELLOW WARBLER. *Dendroica aestiva aestiva*. Rare transient. I have only two records, May 8 and 9, 1935.

MAGNOLIA WARBLER. *Dendroica magnolia*. Rare transient. Arrivals, May 6-12; one fall record, September 19.

MYRTLE WARBLER. *Dendroica coronata*. Abundant transient, fairly common winter resident. Arrivals, October 4-November 1; latest records, April 22-May 4.

BLACK-THROATED GREEN WARBLER. *Dendroica virens virens*. Uncommon transient. Spring arrivals, April 22-29; fall arrivals, October 5-24.

BLACKBURNIAN WARBLER. *Dendroica fusca*. Rare transient. I have only two records, May 7, 1935 and April 29, 1936.

CHESTNUT-SIDED WARBLER. *Dendroica pensylvanica*. Rare transient. A single specimen was seen May 5, 1937.

BAY-BREASTED WARBLER. *Dendroica castanea*. Very rare transient. One was collected May 9, 1937.

BLACK-POLL WARBLER. *Dendroica striata*. Rare transient. My single record, May 11, 1935.

NORTHERN PINE WARBLER. *Dendroica pinus pinus*. Fairly common permanent resident. Flock movement noted especially during September and October.

NORTHERN PRAIRIE WARBLER. *Dendroica discolor discolor*. Fairly common summer resident. Arrivals, April 28-May 12; latest records, August 24-29.

LOUISIANA WATER THRUSH. *Seiurus motacilla*. Fairly common summer resident. Arrivals, March 27-April 11; latest records, July 21-August 23.

KENTUCKY WARBLER. *Oporornis formosus*. Uncommon summer resident. Arrivals, April 22-May 11; latest record, August 24.

CONNECTICUT WARBLER. *Oporornis agilis*. Rare transient. I have only one record, April 28, 1936.

MOURNING WARBLER. *Oporornis philadelphia*. My only record is for May 29, 1935.

NORTHERN YELLOW-THROAT. *Geothlypis trichas brachydaetyla*. I have only one record. A specimen collected October 4, 1936, was identified for me by Dr. Herbert Friedmann.

MARYLAND YELLOW-THROAT. *Geothlypis trichas trichas*. Common summer resident. Arrivals, April 9-18; latest records, July 15-August 6.

YELLOW-BREASTED CHAT. *Icteria virens virens*. Fairly common summer resident. Arrivals, April 22-27; latest records August 1-September 5.

HOODED WARBLER. *Wilsonia citrina*. Uncommon summer resident. Arrivals during the first half of April; latest record, September 10.

WILSON'S WARBLER. *Wilsonia pusilla pusilla*. Uncommon transient. Spring arrivals, May 13-18; fall arrivals, September 10-21.

AMERICAN REDSTART. *Setophaga ruticilla*. Uncommon spring transient, rare fall transient. Spring arrivals, May 7-15; one fall record of arrival, September 10.

ENGLISH SPARROW. *Passer domesticus domesticus*. Abundant permanent resident. I have seen them carrying nesting material every month in the year and copulating as early as January 28.

BOBOLINK. *Dolichonyx oryzivorus*. Rare transient. Two were recorded May 8 and one May 9, 1937, all males.

SOUTHERN MEADOWLARK. *Sturnella magna argutula*. Common permanent resident; less prevalent during the winter.

WESTERN MEADOWLARK. *Sturnella neglecta*. Rare transient. A flock of about thirty, in full song, was recorded November 13, 1937.

ORCHARD ORIOLE. *Icterus spurius*. Abundant summer resident. Arrivals, April 15-17; latest records, August 18-23.

BALTIMORE ORIOLE. *Icterus galbula*. Uncommon spring transient, rare fall transient. Spring arrivals, April 29-May 3; one fall record, September 16.

EASTERN REDWING. *Agelaius phoeniceus phoeniceus*. Common summer resident, uncommon winter resident. Arrivals of summer residents, March 9-23; latest records of summer residents, July 4-August 10.

RUSTY BLACKBIRD. *Euphagus carolinus*. I have only three records, April 3 and November 15 and 21, 1936.

BRONZED GRACKLE. *Quiscalis quiscula aeneus*. Uncommon permanent resident, rare during the last half of the year.

EASTERN COWBIRD. *Molothrus ater ater*. Fairly common summer resident, uncommon winter resident.

SCARLET TANAGER. *Piranga erythromelas*. Uncommon summer resident. Arrivals, April 27-28; late records too meager to determine departures.

SUMMER TANAGER. *Piranga rubra rubra*. Fairly common summer resident. Arrivals, April 20-22; latest records, September 14-23.

EASTERN CARDINAL. *Richmondia cardinalis cardinalis*. Abundant permanent resident.

ROSE-BREADED GROSBEAK. *Hedymeles ludovicianus*. Uncommon transient. Single females were observed May 5 and 8 and a male May 12, 1937.

INDIGO BUNTING. *Passerina cyanea*. Fairly common summer resident. Arrivals, April 23-26; latest records, September 8-October 7.

DICKCISSEL. *Spiza americana*. My only record is for April 29, 1936.

EASTERN PURPLE FINCH. *Carpodacus purpureus purpureus*. Uncommon winter resident. Usually in the company of Goldfinches. Earliest record, November 10; latest, April 9.

NORTHERN PINE SISKIN. *Spinus pinus pinus*. One observation only, March 30, 1936. See the *Auk*, October, 1936, p. 456.

EASTERN GOLDFINCH. *Spinus tristis tristis*. Abundant transient, fairly common winter resident, uncommon summer resident. Spring flights occur from the latter part of March to the middle of April.

RED-EYED TOWHEE. *Pipilo erythrophthalmus erythrophthalmus*. Uncommon winter resident. Arrivals, October 11-31; latest records, April 15-18.

EASTERN SAVANNAH SPARROW. *Passerculus sandwichensis savanna*. Uncommon transient. Spring arrivals, April 2-May 12; fall, October 15-20.

EASTERN GRASSHOPPER SPARROW. *Ammodramus savannarum australis*. Only one observation, May 1, 1936.

VESPER SPARROW. *Pooecetes gramineus gramineus*. Uncommon transient. Observed March 23, 24, April 8 and 9, 1937.



EASTERN LARK SPARROW. *Chondestes grammacus grammacus*. Common summer resident. Arrivals, April 6-27; latest records, August 6-September 29.

BACHMAN'S SPARROW. *Aimophila aestivalis bachmani*. A specimen was collected in the National Park by National Park Naturalist H. W. Lix. The skin is in my collection.

SLATE-COLORED JUNCO. *Junco hyemalis hyemalis*. Abundant winter resident. Arrivals, October 24-25; latest records, April 9-11.

EASTERN TREE SPARROW. *Spizella arborea arborea*. I have only one record, January 27, 1937, when a flight of about forty was seen.

EASTERN CHIPPING SPARROW. *Spizella passerina passerina*. Common permanent resident.

EASTERN FIELD SPARROW. *Spizella pusilla pusilla*. Common winter resident, very rare summer resident. Winter residents arrive October 18-25; latest records, April 21-22. I observed a single individual September 12, 1936. H. R. Gregg, National Park Naturalist, found a nest containing four eggs upon which the parent was sitting May 13, 1936.

WHITE-CROWNED SPARROW. *Zonotrichia leucophrys leucophrys*. Fairly common winter resident. Arrivals, October 28-November 2; latest records, April 11-May 3.

WHITE-THROATED SPARROW. *Zonotrichia albicollis*. Abundant winter resident. Arrivals, October 11-20; latest records, May 4-9.

EASTERN FOX SPARROW. *Passerella iliaca iliaca*. Rare winter resident. My records are too scattering to give arrival and departure dates.

LINCOLN'S SPARROW. *Melospiza lincolni*. Fairly common spring transient, uncommon fall transient. Spring arrivals, April 15-26; fall, during the first half of October. Ate regularly at my feeding station, thirty feet back of the house, during the spring of 1936.

SWAMP SPARROW. *Melospiza georgiana*. Rare winter resident. I have too few records to determine length of stay.

MISSISSIPPI SONG SPARROW. *Melospiza melodia beata*. Song Sparrows are fairly common winter residents. They arrive October 28-31 and remain until March 23-April 8. Of six skins (all in my collection) sent to Washington for identification, four were *juddi* and two *beata*. This small number of identifications can not determine the relative frequency of these varieties. Much further study is necessary to ascertain the presence or absence of other subspecies, particularly *M. m. melodia*, and their relative frequency.

DAKOTA SONG SPARROW. *Melospiza melodia juddi*. See comments on preceding variety.

HOT SPRINGS, ARK.